REMARKS

Claims 1-24 remain under consideration in the application. Claims 6 and 7 stand allowed. Claims 1, 8-12, and 15 are currently amended. No new matter has been introduced.

The invention relates to a method of using a JPEG engine to assist in efficiently constructing MPEG I-frames.

<u>In the claims:</u>

Claims 1-5 and 8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over de Queiroz et al (U.S. Pat. No. 6,058,210) in view of Mitchell et al. (U.S. Pat. No. 6,373,412) and Ferguson (U.S. Pat. No. 6,052,555). Applicant respectfully traverses the rejection of claim 1-5 because the examiner has not made out a *prima facie* case of obviousness. The examiner's case is deficient for at least the reason that the cited references, even when combined, do not teach or suggest all of the limitations of Applicant's claims. (MPEP 2143.03).

Claim 1 has been amended for clarity of language, and to clarify that <u>all</u> of the discrete transform coefficients in the JPEG data produced by the method of claim 1 are byte-aligned. Applicant does not consider this amendment to change the scope of claim 1. Claim 1 as amended recites in part <u>producing JPEG data in which the discrete cosine transform coefficients are encoded in a byte-aligned manner</u>. None of the cited references teaches or suggests this claim limitation. In support of the rejection, the examiner cites column 5, lines 28-34 of Mitchell, which describes a "marker segment in accordance with the JPEG standard" that "always begins with a two byte code beginning with a byte-aligned hexadecimal 'FF' byte....", and then asserts that this passage "implicitly refers to quantized DCT coefficients since in the compression process the result of quantization and DCT is a sequence of DCT coefficients." (Paper 06272005, page 3). Applicant respectfully notes that while a marker segment or other portion of a JPEG file may start with a byte-aligned code, that byte-aligned code does not encode a DCT coefficient. The DCT coefficients in a usual JPEG file are encoded with variable-length codes, which by their nature are not byte aligned.

Because the cited art does not teach or suggest all of the elements of Applicant's claim 1 as amended, claim 1 is believed allowable.

Claims 2-5 depend from allowable claim 1 and add further limitations, and are thus also believed allowable.

Claim 8 has been amended to clarify that the data stream produced by the image compression system is a JPEG-compliant data stream. This change finds support in the specification at least at page 14 lines 16-18. As in claim 1, Applicant's claim 8 as amended includes the limitation that all discrete cosine transform coefficients are encoded in a byte-aligned manner. This limitation is not taught or suggested by the cited art.

The clarification that the data stream is JPEG-compliant serves to more clearly further distinguish the data stream of claim 8 from the "packed intermediate data format" described at column 4 lines 16-19 and in Figure 10 of Mitchell (not cited by the examiner). Mitchell's intermediate data format appears to be byte-aligned and to encode DCT coefficients, however it is not a JPEG-compliant format in that it does not result in a JPEG file.

Because the cited are does not teach or suggest all of the limitations of claim 8, claim 8 is believed allowable.

Claims 9-17 and 19-24 have been rejected under 35 U.S.C. 102(e) as being anticipated by Mitchell et al. (U.S. Pat. No. 6,373,412).

Claims 9 and 10 have been amended to more accurately claim a table exemplified by Table 8 in the specification, from which the amendment takes its support. Neither Mitchell nor any of the other cited art describes such a table, and claims 9 and 10 are believed allowable.

Claims 11 and 12 have been amended to more accurately claim a table exemplified by Table 9 in the specification, from which the amendment takes its support. Neither Mitchell nor any of the other cited art describes such a table, and claims 11 and 12 are believed allowable.

Applicant respectfully traverses the rejections of claims 13 and 14 because the examiner has not made out a *prima facie* case of anticipation for these claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed Cir. 1987).

Claim 13 recites a <u>lookup table that correlates byte-aligned JPEG DC</u> <u>coefficient codes and following bits with equivalent MPEG DC coefficient codes and</u> <u>following bits.</u> Claim 14 is analogous for AC coefficient codes and following bits. Mitchell makes no mention of MPEG coefficient codes and following bits. In fact, Mitchell makes only one passing reference to MPEG at all (column 1, line 40), and certainly does not disclose tables for correlating JPEG data with analgous MPEG data. In support of the rejection, the examiner cites column 5 lines 28-35, column 5 lines 64-66, and Figure 2 of Mitchell. While one of these passages mentions a lookup table, these passages are directed to constructing a JPEG file. None mentions MPEG and certainly none describes <u>correlat[ing] byte-aligned JPEG DC coefficient codes</u> <u>and following bits with equivalent MPEG DC coefficient codes and following bits</u> as is recited in claim 13 nor <u>correlate[ing] byte-aligned JPEG AC coefficient codes and</u> <u>following bits with equivalent MPEG AC coefficient codes</u> as is recited in claim 14. Thus, claims 13 and 14 are not anticipated by Mitchell and are believed allowable.

Claim 15 has been amended to include the limitation that a JPEG engine is configured to produce <u>JPEG-compliant data</u>. This change finds support at least at page 14 lines 16-18. This change also more clearly distinguishes the bit patterns of claim 15 from the "packed intermediate data format" described at column 4 lines 16-19 and in Figure 10 of Mitchell (not cited by the examiner). Mitchell's intermediate format appears to be byte-aligned and to encode DCT coefficients, however it is not a JPEG-compliant format in that it does not result in a JPEG file. One advantage of applicant's invention is that it allows an existing JPEG engine to be configured to produce a JPEG-complaint file that greatly facilitates the conversion to an MPEG I-frame.

Claim 15 recites in part <u>each bit pattern that encodes a discrete cosine</u> <u>transform coefficient having a length that is an integer multiple of eight bits.</u> In support of the rejection of claim 15, the examiner cites column 11 lines 56-59 of Mitchell. This passage indicates that in accordance with the invention of Mitchell, "n and the code word are stored in a byte when both can be stored in a total of eight bits or less." However, this passage describes only a step in encoding an "R/S" (run/size) value. (See Mitchell column 11 line 46.) This R/S value does not completely encode a DCT coefficient. More "extra S bits" are needed, at least in some cases, to complete the encoding, and the result is a "variable length". (Column 12 lines 5-8) None of the

cited art describes or even suggests <u>configuring a JPEG engine to produce JPEG-</u> <u>compliant data comprising bit patterns that encode discrete cosine transform</u> <u>coefficients, each bit pattern that encodes a discrete cosine transform coefficient</u> <u>having a length that is an integer multiple of eight bits.</u> Claim 15 is therefore believed allowable.

Claims 16-19 depend from claim 15 and add further limitations, and are therefore also believed allowable.

Applicant respectfully traverses the rejection of claim 20-24 because the examiner has not made out a *prima facie* case of anticipation regarding these claims.

Claim 20 recites a <u>method, comprising constructing JPEG data in which each</u> <u>bit pattern encoding a run/value combination has a length that is an integer multiple of</u> <u>eight bits.</u> In support of the rejection, the examiner cites column 11 lines 56-59 of Mitchell, "teaching a bit pattern of up to 16 bits". (Paper 06272005 page 7). The teaching of a bit pattern "up to 16 bits" hardly restrains the bit each bit pattern to <u>an</u> <u>integer multiple of eight bits.</u> Clearly the cited passage does not support the rejection. Furthermore Mitchell does not describe constructing <u>JPEG data</u> with the feature that <u>each bit pattern encoding a run/value combination has a length that is an integer</u> <u>multiple of eight bits.</u> As is clear from Applicant's specification, <u>JPEG data</u> is data compliant with the JPEG specification. (See for example specification page 14 lines 16-21 and page 21 lines 6-8.) Because Mitchell does not describe each and every element of Applicant's claim 20, Mitchell does not anticipate claim 20 and claim 20 is believed allowable.

Claims 21-24 depend from allowable claim 20 and add further limitations, and are thus also believed allowable.

Claim 18 has been objected to as being dependent on a rejected base claim (claim 15), but the examiner has indicated that that claim 18 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim. Applicant believes this objection to be moot in light of the arguments given above for the allowability of claim 15. Claim 18 depends from allowable claim 15 and adds further limitations, and is therefore also believed allowable as written.

Applicant believes this application is in condition for allowance, and such action is earnestly solicited.

Respectfully submitted,

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